

**WHAT IS CLAIMED IS:**

1. An apparatus for measuring the mass and calculating the weight of individual objects to be held thereby, comprising forceps having a proximal portion and a distal portion, said proximal portion being adapted to grasp and hold a selected object, means associated with said forceps for initiating vibration of the same while said object is held thereby and means for measuring the oscillating frequency of said forceps while said object is held thereby, and for utilizing the measured higher oscillating frequency of the empty forceps to compute the mass and the weight of said selected object.
2. An apparatus for measuring the mass and calculating the weight of objects, according to claim 1, further comprising a housing enveloping at least said means for oscillating and said measuring means.
3. An apparatus for measuring the mass and calculating the weight of objects, according to claim 2, wherein said proximal portion of said forceps extends beyond said housing and wherein said apparatus further comprises actuating means interacting with said forceps for opening the same for grasping purposes.
4. An apparatus for measuring the mass and calculating the weight of objects, according to claim 3, wherein said actuating means comprise a headed pin passing through a surface of said housing and pushable against spring bias to separate the arms of said forceps.
5. An apparatus for measuring the mass and calculating the weight of objects, according to claim 1, wherein said means for initiating vibration of said forceps are solenoid means.

6. An apparatus for measuring the mass and calculating the weight of objects, according to claim 1, wherein said means for measuring the oscillating frequency of said forceps include optical means.
7. An apparatus for measuring the mass and calculating the weight of objects, according to claim 6, wherein said optical means include a light emitter, a light detector and a plurality of optical fibers adapted to transfer light to the vibrating forceps and to transfer collected light inputs to said detector.
8. An apparatus for measuring the mass and calculating the weight of objects, according to claim 1, wherein said forceps, said means for initiating vibration thereof and said means for measuring the oscillating frequency of said forceps while said object is held thereby are all contained in a unitary hand-holdable housing further comprising display means for showing the computed weight of said object held thereby.
9. An apparatus for measuring the mass and calculating the weight of objects, according to claim 8, further including an electric power source for cordless operation.
10. An apparatus for measuring the mass and calculating the weight of objects, according to claim 2, wherein said distal portion of said forceps is rigidly attached within said housing.
11. An apparatus for measuring the mass and calculating the weight of objects, according to claim 1, wherein said forceps comprise a proximal portion formed of two arms adapted to be displaced relative to each other against a bending bias and thereby to grasp and hold a selected object, and a distal portion wherein said arms and portions of said forceps are formed as an integral unit.

12. An apparatus for measuring the mass and calculating the weight of objects, according to claim 1, wherein said proximal portion of said forceps are provided with an object-location element ensuring that grasped objects are held at a fixed distance from said distal portion of said forceps.
13. An apparatus for measuring the mass and calculating the weight of objects, according to claim 1, wherein said object is a gemstone.
14. An apparatus for measuring the mass and calculating the weight of objects, according to claim 1, wherein said means for initiating vibration of said forceps are solenoid means.
15. An apparatus for measuring the mass and calculating the weight of objects, according to claim 1, wherein said object is a diamond.